MULTILAYER POLYMERIC/ZERO VALENT MATERIAL STRUCTURE FOR ENHANCED GAS OR VAPOR BARRIER AND UV BARRIER AND METHOD FOR MAKING SAME

Abstract of the Invention

The coated multilayer structure comprising a polymeric base layer, a zero valent material barrier layer, and a top coat on the zero valent material barrier layer, the top coat comprising a soluble compound capable of reducing the permeability of the multilayer structure to gas or vapor. The zero valent material barrier layer can also enhance barrier to UV light. A method for enhancing the gas or vapor barrier properties or the UV light barrier properties of a multilayer polymeric/inorganic structure is also disclosed. According to one embodiment, Si coated polyethylene terephthalate containers are coated with a gas or vapor barrier enhancing top coat. A method for recycling containers coated with a zero valent material barrier layer is also disclosed.